

Chapter 11. Noise

This chapter analyzes the noise impacts on noise as a result of the GO's regulation of the application of biosolids. Noise-sensitive land uses, existing noise conditions, and regulatory information are also described.

Technical terms and acronyms used in this chapter may not be familiar to the reader. Explanations of these terms, acronyms (including dBA, L_{dn} , and L_{eq}), and background information on environmental acoustics and State and federal noise regulations are provided in Appendix G.

Environmental Setting

Noise-Sensitive Land Uses

Land uses such as residences, health care facilities, public libraries, schools, and parks are typically considered sensitive to noise (sensitive receptors). Land application of biosolids would primarily involve the use of biosolids on traditional agricultural crops, silvicultural or horticultural operations, or in the reclamation of disturbed lands. Because the location of these operations are typically in rural or semirural areas, the primary land uses in the potential application areas would be rural residential and/or agricultural operations. Noise-sensitive land uses would primarily be residences; however, noise-sensitive land uses along the delivery routes may include schools, parks, and/or health care facilities.

Existing Noise Conditions

The noise in the potential application areas is expected to be typical of a quiet rural environment. The predominant sources of noise would include roadway traffic and equipment noise from existing agricultural operations. Other less-dominant sources of noise would include aircraft that occasionally fly overhead and animals such as birds and insects. Noise levels in these types of environments typically are in the range of 45-55 decibels above reference noise, adjusted (dBA).

Regulatory Setting

In California, most cities and counties have adopted noise ordinances, which serve as enforcement mechanisms for controlling noise, and general plan noise elements, which are used as planning guidelines to ensure that long-term noise generated by a source is compatible with adjacent land uses. The California Department of Health Services' (DHS's) Office of Noise Control has studied the correlation of noise levels and their effects on various land uses and has published land use compatibility guidelines for the noise elements of local general plans. The guidelines are the basis for most noise-element land use compatibility guidelines in California.

As more fully described in Appendix G, the noise-element guidelines chart identifies the normally acceptable range for several different land uses. The recommended maximum acceptable noise levels for various land uses are shown below in Table 11-1.

Table 11-1.
Maximum Allowable Ambient Noise Exposure for Various Land Uses

Land Use	Suggested Maximum L_{dn}
Residential - Low Density	60
Residential - High Density	65
Transient Lodging	65
Schools, Libraries, Churches, Hospitals	70
Auditoriums	70
Playgrounds, Parks	70
Commercial	70
Industrial	75

Note: L_{dn} = day-night average sound level.

Source: State of California, Office of Planning & Research 1990.

As shown in Table 11-1, persons in low-density residential settings are most sensitive to noise intrusion, with noise levels of 60 dBA community noise equivalent level (CNEL) and below considered “acceptable”. For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels go up to 70 L_{dn} CNEL. For persons in commercial and industrial settings, acceptable levels of noise go up to 70 and 75 L_{dn} CNEL respectively.

Impacts and Mitigation Measures

Approach and Methods

Noise impacts associated with implementation of the GO have been evaluated at a program level of detail using standard acoustical modeling techniques. Typical source noise levels for activities associated with the transport and application of biosolids and potential distances from these activities to noise-sensitive receptors were used to predict potential noise levels at these receptors. Potential noise levels were then compared to typical criteria to assess the significance of potential impacts.

The transport and application of biosolids would generate noise levels similar to those shown for backhoes and trucks in Table 11-2. Noise levels at 50 feet from the source would range from 80 to 88 dBA and would be similar to noise levels produced by existing agricultural operations. The GO states that application of biosolids would not be allowed within 500 feet of residential uses. Table 11-3 summarizes predicted noise levels at various distances from an application site based on a source noise level of 88 dBA at 50 feet. These estimates of noise levels take into account distance attenuation, attenuation from molecular absorption, and anomalous excess attenuation (Hoover 1996). At 500 feet from the source, application equipment is estimated to generate noise levels of up to 67 dBA (Table 11-3).

**Table 11-2.
Equipment Noise Emission Levels**

Equipment	Typical Noise Level (dBA)
Backhoe	80
Truck	88

Source: Federal Transit Administration 1995.

Table 11-3.
Estimated Project-Related Noise in the Project Area

Distance Attenuation	
Distance to Receptor (feet)	Sound Level at Receptor (dBA)
50	88
100	82
200	76
400	69
500	67
600	65
800	63
1,000	60
1,500	56
2,000	53
2,500	50
3,000	47
4,000	43
5,280	39
7,500	32

Notes: The following assumptions were used:

Basic sound level dropoff rate: 6.0 dB per doubling of distance.

Molecular absorption coefficient: 0.7 dB per 1,000 feet.

Anomalous excess attenuation: 1.0 dB per 1,000 feet.

Reference sound level: 88 dBA.

Distance for reference sound level: 50 feet.

Thresholds of Significance

According to the environmental checklist from Appendix G of the State CEQA Guidelines, a project is considered to have a significant noise impact if it would:

- g expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- g expose people to or generate excessive groundborne vibration or groundborne noise levels;
- g generate a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- g generate a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Section 15064 (I) of the State CEQA Guidelines states that a change in the environment is not a significant effect if the change complies with a standard that is a quantitative, qualitative, or performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application. For the purposes of assessing the significance of noise impacts associated with the implementation of the GO, a noise impact would be considered significant if implementation of the GO has potential to result in an exceedance of noise ordinance criteria typically used in California.

Impacts of Agricultural Use

Impact: Exposure of Noise-Sensitive Land Uses to Noise Resulting from the Transport of Biosolids

Application of biosolids on agricultural lands would result in transportation-related noise impacts on sensitive receptors located along delivery or haul routes. As more fully described in Chapter 9, "Traffic", a typical application of biosolids would generate between 80 and 120 round trips per 40- to 60-acre application site per day or approximately 10 to 15 round trips per hour (based on an 8-hour day). (The number of trips will vary significantly with the size of the application operation). Because the GO

does not specify the use of specific transport routes, it is possible that transporters may use routes through existing residential areas. Because of the potential for project-related truck traffic to result in substantial noise increases to residential areas along transport routes, this impact is considered significant. To reduce this impact to a less-than-significant level, the project applicant will implement Mitigation Measure 11-1.

Mitigation Measure 11-1: Avoid the Use of Haul Routes near Residential Land

Uses. The project applicant and or transporter will avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the project applicant and or transporter will limit project-related truck traffic to daylight hours (8 a.m. to 6 p.m.).

Impact: Exposure of Noise-Sensitive Land Uses to Noise from the Land Application of Biosolids

Application of biosolids at agricultural sites would result in noise impacts associated with operation of the application equipment. Noise levels of the loudest application equipment would be expected to range from approximately 80 to 88 dBA at 50 feet. For the nearest potential residences at 500 feet from the application site, this corresponds to approximately 67 dBA. Because the application of biosolids on agricultural land would emit noise levels similar to those of existing agricultural equipment, application-related noise resulting from the proposed project would be similar to noise from existing agricultural operations. Additionally, potential impacts would be short-term. Therefore, application-related noise impacts are considered less than significant.

Mitigation: No mitigation is required.

Impacts of Other Activities

Horticultural Use

Although the use of biosolids for horticultural activities could be located in more urban areas than the sites where agricultural land application would occur, horticultural activities would generally result in the same type of noise impacts as described above under “Agricultural Use” because sensitive receptors also could be located along the delivery or haul routes or in the area where the land application would occur. These sensitive receptors could be affected by the potential increase in noise if the receptors are located adjacent to delivery or haul routes. No noise impacts would occur to sensitive receptors

located adjacent to the application site because the use of biosolids for large landscaping projects would be indistinguishable from other noise generated from the project and would not be located within 500 feet of a residence.

Silvicultural Use

The silvicultural use of biosolids would result in similar impacts as described above under “Agricultural Use” because sensitive receptors also could be located along the delivery routes or in the area where the land application would occur and application-related noise would be similar to existing noise levels for silvicultural operations. Therefore, Mitigation Measure 11-1 would be required to reduce transportation-related noise impacts to a less-than-significant level.

Land Reclamation

The use of biosolids for land reclamation would result in similar noise impacts as described above under “Agricultural Use” because existing noise levels in areas of reclamation sites or soil borrow areas are generally similar to those for agricultural areas. Therefore, Mitigation Measure 11-1 would be required to reduce transportation-related noise impacts to a less-than-significant level. Additionally, the use of biosolids for a final cover material would not affect sensitive receptors because this activity would result in noise levels similar to those at the landfill.